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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,196	07/11/2003	Haruyuki Nishijima	4041J-000742	4275

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EXAMINER

FLANIGAN, ALLEN J

ART UNIT PAPER NUMBER

3753

DATE MAILED: 01/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/618,196	NISHIJIMA ET AL.	
	Examiner	Art Unit	
	Allen J. Flanigan	3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 18 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 16-29 is/are pending in the application.
- 4a) Of the above claim(s) 3, 7, 22 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-6, 16-21, 23-25, and 27-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claims 3, 7, 22, and 26 stand withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 18 July 2005.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 2, 4, 16, 17, 19, 20, 21, 23, 27, and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by US patent #4,893,674 to Hagemeister (hereinafter "Hagemeister '674").

See Fig. 2 in particular, showing offset rows of streamlined tubes each with a plurality of passages (two) formed in the tubes. Regarding claim 16 and similar (with the "upper" and "lower" tanks), note upper and lower ducts 4, 5 in the manifold of Hagemeister '674 between which the u-shaped tubes 3 extend vertically (as well as extending outward horizontally).

Claim 28 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Limebeer.

Limebeer shows tubes aerodynamically shaped as a teardrop in cross section. They also show an upper manifold tank 16 and a lower tube sheet (14 in Fig. 3) to which a tank or manifold is presumably attached. The reference is deemed to thus implicitly disclose the claimed "lower tank". Even assuming *arguendo* that such a tank is not implicitly disclosed in Limebeer, it would have been obvious to one of ordinary skill in the art at the time the instant invention

was made to provide such a tank. Such inlet and outlet manifold means are virtually universally used in tube type heat exchangers.

Claims 5, 6, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haussmann in view of Warner and Stoy et al.

Haussmann teaches a heat exchanger with streamlined, multipassage tubes that is suitable for use as an evaporator (lines 26-31 of column 5). As noted previously, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to form a coating on evaporator type heat exchangers to shed liquid droplets of condensation (see rejection of claims 5 and 6 in previous Office action). As explained with regard to Burgess, it would have been similarly obvious to one of ordinary skill in the art at the time the instant invention was made to provide a hydrophobic coating on the tubes of Haussmann.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hagemeister '674 in view of Mautsch and Wei et al.

Wei et al. teach that the disclosed and claimed teardrop shape is well known in the art; it has been used in fields as varied as car body design and wing design, to reduce aerodynamic drag. Mautsch expressly disclose that the equivalency of the elliptical tube shape of Hagemeister '674 and the teardrop shape is known in the art. Thus, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to form the tubes of Hagemeister '674 in a teardrop cross section for reduced drag.

Applicant's arguments with respect to the rejected have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen J. Flanigan whose telephone number is (571) 272-4910. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on (571) 272-4930. The

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fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allen J. Flanigan
Primary Examiner
Art Unit 3753

AJF